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AUTHOR Henry, Barbara L.; Knight, William E.

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ABSTRACT

This study provides a thorough examination of the experiences of a group of students who transferred from a public community college in the Midwest to a nearby public residential university between spring 1994 and spring 2001. The study population consisted of 552 students who transferred from the community college to the university with 12 or more semester credit hours. The researchers designated the 2 groups of students in the study persisters (386, or 67%) and non-persisters (184, or 33%). A total of 243 (44%) of the persisters had earned a bachelor's degree and 125 (23%) were still enrolled at the university by spring 2002. The non-persisters were no longer enrolled in the university during spring 2002. Women and whites were the majority in both groups. Almost all of the students in both groups had earned a high school diploma rather than a G.E.D. The majority of both groups attended the community college for 3 years or less, and most did not attend the community college full time. The study suggests that the 2-plus-2 paradigm is probably less realistic than a 3-plus-3, or 3 years at community college and three at university in order to earn a degree. Suggests that transfer centers need to be an intentional part of the community college's academic division. (Contains 13 references and 38 tables.) (NB)

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What Matters in the University Graduation of Community College Transfer Students

Barbara L. Henry* and William E. Knight*,**

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* Barbara L. Henry, College of Arts and Sciences, Owens Community College. William E. Knight, Office of Institutional Research, Bowling Green State University.

**Address correspondence to: William E. Knight, Office of Institutional Research, Bowling Green State University, 301 McFall Center, Bowling Green, Ohio 43403, 419-372-7791 (voice), 419-372-7878 (fax), wknight@bgnet.bgsu.edu

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Abstract

Every year hundreds of thousands of community college students transfer to colleges and universities with the intent of receiving a bachelor's degree, yet this goal is not realized for many of them. What are the factors that promote successful graduation of community college transfer students? This study examines a comprehensive set of personal, community college enrollment, and university enrollment characteristics of students who transferred from a community college to a university in the Midwest to develop a predictive profile of which students are more likely to graduate. Implications for policy and practice are provided.

key words: community college, transfer students, graduation, student success

What Matters in the University Graduation of Community College Transfer Students

Introduction

The college-going population is increasing in size in some areas of the United States while it is stable or declining in others. Nearly everywhere tuition is increasing at a considerably greater pace than inflation, causing students to critically examine their enrollment options (National Center for Public Policy and Higher Education, 2002). For students who aspire to a bachelor's degree, starting their enrollment at a community college and later transferring to a four-year college or university is an attractive option to minimize costs, as well as to offer more flexibility as they deal with work and family responsibilities (Cohen & Brawer, 1996; Gerald & Hussar, 2001; Rifkin, 1996). Colleges and universities increasingly view outreach to community college transfer students as a means to increase or maintain their own enrollments.

Despite the existence of articulation agreements many barriers exist to the baccalaureate graduation of students who transferred from community colleges (Pascarella & Terenzini, 1991). National enrollment patterns indicate the necessity of removing these unnecessary barriers to enhance the transfer process (Brint & Karabel, 1989; Cohen & Brawer, 1996; Dougherty, 2001; Laanan, 2001; Rifkin, 1996). While it is known that half of all first-time freshmen begin their college career at a community college, obtaining accurate information about how many of those students intend to transfer to a senior institution in pursuit of a bachelor's degree, how many achieve that goal, and predictors of successful graduation is not possible to ascertain using the available national data (Cohen & Brawer, 1996; Laanan, 2001). Previous research on this topic has been limited to smaller sets of predictor variables and may not be generalizable beyond specific institutional settings; more such studies are needed (Laanan, 2001).

The purpose of this study is to provide a thorough examination of the experiences of a group of students who transferred from a public community college in the Midwest to a nearby public residential university between Spring 1994 and Spring 2001 (N=552). The background demographic and educational characteristics of the students, information on their enrollment behaviors at the community college, and information on their enrollment behaviors at the university were used as predictors of whether the students had graduated or were still enrolled as of Spring 2002 or whether they had stopped their enrollment without graduating. The results were used to develop a profile of the successful transfer student that provides policy

and practice implications for leaders at both institutions as well as for those interested in this issue nationally.

Literature Review

There are many reasons that students initially choose to attend a community college. These include academic preparedness, location, flexibility, and cost, but whatever the reason(s), according to Pascarella and Terenzini (1991), "there is consistent evidence that initial attendance at a two-year rather than a four-year college lowers the likelihood of one's attaining a bachelor's degree" (p. 372). Dougherty (1987) suggested three reasons for lower bachelor's degree success for students who enter a two-year college: the high levels of attrition within the two-year school, the difficulties that exist in transferring to a four-year institution, and, finally, the attrition rates following transfer. Although many forces may be at work at different times, nevertheless baccalaureate degree attainment is affected and therefore the potential socioeconomic status is also affected (Pascarella & Terenzini, 1991). Among retention studies, Tinto's (1975, 1987, 1993) seminal research has provided a conceptual framework for more focused retention studies by Bean and Metzner (1985) and Stahl and Pavel (1992) among others. Tinto's work provided the framework to develop the variables used in this study divided into three categories: pre-college background, community college experiences, and university experiences. Additional studies further developed the framework regarding the specific student population variables that might be predictors for persistence to degree attainment. The variables were developed based on earlier retention studies and emphasized pre-college background characteristics and academic integration behaviors.

Method

The study assumed that the student population would include characteristics from multiple student sub-populations such as traditional, non-traditional, full-time and part-time. Since this study was based upon enrollment at a community college prior to transfer and enrollment at the university, it was assumed that students might demonstrate the characteristics of community college students as well. The population consisted of 552 students who transferred from the community college to the university with 12 or more semester credit hours between Spring 1994 and Spring 2001. The decision was made by the researchers to designate the two groups of students in the study *persisters* and *non-persisters*. The *persisters* (n = 368) were either last enrolled and /or earned a bachelor's degree by Spring 2002 and *non-persisters* (n = 184)

had stopped their enrollment prior to Spring 2002. The university's office of admissions identified the total population. Data were extracted from the community college transcripts for pre-college background information as well as the community college academic behaviors. Finally the university student data were combined into a comprehensive dataset including pre-college, community college, and university data.

The research questions were divided into two sets of three. The first set concerned the description of the persisters and non-persisters and the ways in which these two groups differed significantly, according to a complex set of variables considered independently. The second set of research questions treats predictors jointly within the categories of pre-college background, community college experience variables, and university experience variables. Descriptive statistics, chi-square and *t*-test analyses were used as the analytical procedures for the first set of analytical procedures. Logistic and hierarchical logistic regression techniques served as the remaining analyses.

The causal-comparative research design of the study was chosen because the events had already occurred. The study was starting with an effect (persisting or not persisting) and seeking possible causes by examining the relationship of the effect to the independent variables of the three categories of characteristics: pre-college background, community college, and university experiences.

Results

Descriptive Results

Among the 368 (66.7%) persisters in the study, 243 (44%) had earned a bachelor's degree and 125 (22.6%) were still enrolled at the university by Spring 2002. The 184 (33.3%) non-persisters represented the students who were no longer enrolled at the university for Spring 2002.

Pre-college experiences.

The demographic information regarding the two groups, as presented in Table 1, shows that women represented the majority of both the persisters (59.8%) and the non-persisters (55.4%) and that the vast majority of both the persisters (89.1%) and the non-persisters (90.8%) were white. Almost all of the persisters (98.4%) and the non-persisters (96.7%) had earned a high school diploma rather than a GED. It is important to note that the majority of students did not have high school GPAs and ACT scores in their university records. Of those who did, 62% of the persisters and 48.6% of the non-persisters had high school GPAs of 2.50 or higher on a 4.00 scale. Although most ACT scores were missing, based on the available

data, the most common ACT scores for both groups were between 18 and 20 with scores as low as 14 and as high as 28.

Community college experiences.

Among the extensive results from the community college experiences, selected findings demonstrate the highlights of this portion of the study. The beginning and ending enrollment dates were calculated to ascertain the length of enrollment each student attended the community college (see Table 2). Two items should be noted; first that the beginning or ending enrollment data were missing for some students and second, that students were sometimes co-enrolled at both institutions. Less than half of the persisters (42.1%) and more than a third of the non-persisters (39.1%) were enrolled at the community college for two or fewer years, in fact, the majority of persisters (65.8%) and non-persisters (67.9%) attended the community college for three years or fewer.

Table 3 illustrates the enrollment pattern at the community college for the two groups of students. Only small percentages of persisters (16.3%) and non-persisters (15.2%) had a full-time attendance pattern at the community college. Slightly more than half of the persisters (52.2%) as well as the non-persisters (51.8%) earned 60 or fewer credit hours at the community college (see Table 4). The majority of students in both groups, 72.6% of the persisters and 79.9% of the non-persisters, averaged below 12 credit hours per term, meaning that most of the students did not attend the community college full-time (see Table 5).

One possible barrier to bachelor's degree attainment could be academic under-preparedness as demonstrated by credits earned in developmental courses. Total developmental credits earned ranged from zero to 32; 51.6% of the persisters and 49.5% of the non-persisters took one or more developmental courses in English, reading, and mathematics at the community college (see Table 6).

Previous research has indicated that another barrier faced by transfer students is the number of credit hours that transfer to the senior institution. The credit hour ranges listed in Table 7 are based upon 12 credit hour or full-time semesters and show that 59% of the persisters and 54.4% of the non-persisters transferred 60 or fewer credit hours, with slightly more than a third of the non-persisters (34.8% and 36.4%) represented respectively in the 12 to 36 and 61 to 84 credit hour ranges.

It is important to note that 33.2% of the persisters and 30.4% of the non-persisters had all of their community college credit hours transfer to the university. The heavy concentration of students with

between four and eight credit hours not transferring may be indicative of their completion of one or two developmental education classes such as math, English, and reading.

The ages of students when first enrolled at the community college (see Table 8) indicate that 45.1% of the persisters and 41.3% of the non-persisters were under 19, suggesting that they took their first course at the community college either during or immediately following high school. Those who could be defined as non-traditional students by virtue of being more than 24 years old at the time of first enrollment included 10.6% of the persisters and 16.3% of the non-persisters.

Table 9 provides equivalent information regarding age at last enrollment at the community college. Overall, 55.7% of the persisters and 50.5% of the non-persisters were last enrolled when they were 22 years old or younger. Another 17.1% of the persisters and 18.5% of the non-persisters would also be classified as "traditional" students, because they were between the ages of 22 and 24. By the time students completed their last course at the community college, 26.6% of the persisters and 30.4% of the non-persisters were non-traditional students (older than 24).

Table 10 displays the ranges of cumulative grade point averages (GPAs) earned at the community college. Fourteen persisters and nine non-persisters had earned a 4.00 GPA. The majority of persisters (78.9%) and non-persisters (78.9%) had GPAs between a 2.50 and 4.00 when they transferred to the university. As noted in Table11, only 88 (23.9%) of the persisters and 52 (28.3%) of the non-persisters had earned an associate's degree prior to transferring to the university, a result of great interest to community college educators.

University experiences.

In terms of total number of fall and spring semester enrollments at the university, Table 12 shows that most persisters (70.9%) were enrolled for between four and seven semesters, whereas 90.8% of the non-persisters were enrolled for between zero and four semesters. The stop-out behavior for fall and spring semesters, as described in Table 13, indicates that 81.3% of the persisters, but none of the non-persisters maintained continuous enrollment (i.e., did *not* stop-out) during the fall and spring semesters between their first and last enrollments at the university.

The next set of tables (14 to 17) summarizes summer semester enrollment behavior for the two groups of students. These tables show that of the persisters, 19.3% enrolled for at least one full-time

summer session, 65.2% for at least one part-time summer session, 72.3% for at least one summer session (as either a part-time or full-time student), and 30.7% for every summer session (i.e., they had zero stop-out summer sessions during their tenure at the university). In contrast, of the non-persisters, only 3.8% enrolled for at least one full-time summer session, 34.0% for at least one part-time summer session, 23.4% for at least one summer session (as either a part-time or full-time student), and 1.1% for every summer session (i.e., they had zero stop-out summer sessions) during their tenure at the university

The previous sets of tables related to university semester enrollment behavior help to illustrate the university enrollment pattern demonstrated in Table 18, which shows that 80.7% of the persisters enrolled continuously in contrast to the non-persisters who by definition had discontinuous enrollment. The type of enrollment shown by 47.6% of the persisters was mixed, both full-time and part-time, followed by 41.6% who attended full-time, whereas 43.5% of the non-persisters preferred full-time followed by part-time at 31.5% (see Table 19).

Table 20 describes the total number of credit hours earned by students at the university, with 74.2% of the persisters grouped from over 120 to 168 credit hours earned compared to the majority of non-persisters who were mostly distributed from zero to 120 credits, with 81% falling between 25 and 120 credits.

The amount of time that students stopped out between the last enrollment at the community college and first enrollment at the university is described in Table 21. Some students were co-enrolled (attending both institutions at the same time) and some students first enrolled at the university as high school students prior to first community college enrollment and subsequent transfer back to the university. Those with no stop-out time comprised 28.3% of the persisters and 30.4% of the non-persisters. The largest single group of persisters (44.6%) and the non-persisters (41.3%) enrolled at the university within two semesters following their last semester at the community college. The remaining 12.5% of the persisters and 21.7% of the non-persisters stopped out for between one and 20 years after their last enrollment at the community college and before their first enrollment at the university.

Table 22 shows the length of time from first community college enrollment to last university enrollment. These time periods ranged from less than two to 30 years, with 60.4% of the persisters and 69.9% of the non-persisters spending less than six years from first to last enrollment. Of the persisters,

26.9% received their bachelor's degrees from the university four to six years after they first enrolled at the community college (see Table 23). It should be noted that due to missing data for some of the first community college enrollments, length of time to degree could not be calculated for all cases.

The ages of students at the time of first and last enrollment at the university are shown in Tables 24 and 25. More than two-thirds of the persisters (69.6%), but slightly less than two-thirds of the non-persisters (60%) are traditional age students (under 24) when they enter the university, whereas 45.7% of the persisters and 52.2% of the non-persisters are under the age of 24 during their last semester of enrollment at the university. Although age at graduation ranged from 20 to 54, most students were in their twenties when they received their bachelor's degrees (see Table 26).

Table 27 presents the data regarding the students' university cumulative GPAs. For the persisters, 85.1% had a 2.50 or above on a 4.00 scale; the largest single group (32.3%) had between a 3.00 and 3.49. In contrast, 39.7% of the non-persisters had GPAs below 2.00 and 31.5% maintained GPAs between 2.00 and 2.99. The final frequency table (Table 28) shows that 243 of the persisters had received their degree as of spring of 2002. It is unknown if the remaining 125 persisters continued their enrollment at the university after spring 2002 due to the time frame of this study. It should be noted that of the total population of 552 students who transferred from the community college to the university between the spring of 1994 and the spring of 2001, the 243 who received bachelor's degrees represent 44%.

The frequency data have provided a picture of the community college transfer student who persists and attains a bachelor's degree at a Midwestern regional university. Based upon the available data it appears that student is more likely to be a white female who graduated from high school with a GPA of 2.50 or higher and had an ACT score between 14 and 23. Almost one half of the persisters were under 19 years old when they first enrolled at the community college, and only 10.6% were more than 24 years old, meaning that most persisters were traditional age at first enrollment. Most persisters (51.6%) completed at least one developmental education course and overwhelmingly attended the community college part-time. The majority of the persisters (52.2%) earned less than 60 community college credit hours, of which four to eight did *not* transfer to the university. The credits that did not transfer were most likely for developmental courses. Less than half of the persisters (42.8) were enrolled at the community college for two or less years.

The students' community college cumulative GPAs for the persisters were 2.50 or higher. Prior to transferring to the university, the majority of persisters did *not* earn an associate's degree.

The persister was in her early twenties during the first semester of enrollment at the university. The majority of persisters were over 24 years old at last university enrollment, joining the non-traditional student age group. The persisters' enrollment behavior encompassed attending fall and spring semesters full-time, attending a summer session part-time, and engaging in very limited stop-out behavior. The persister was continuously enrolled, usually in a mixed pattern of full-time and part-time behavior and completed a degree at the university between two and four years after transferring from the community college. The persisters either did not stop-out or stopped out for less than one year between the community college and enrollment at the university. The persisters spent less than six years from first enrollment at the community college to last enrollment at the university and the single largest group of persisters earned a 3.00 or above university cumulative GPA.

Univariate and Logistic Regression Results

Chi-square results.

The proportions of persisters and non-persisters who differed significantly according to variables such as gender, race/ethnicity, high school credential, and college enrollment patterns are described in order by descending significance value in Tables 29 to 31. Chi-square was used as the analytic technique. No significant differences were found between the persisters and non-persisters for the pre-college demographic factors such as gender and race. Table 29 shows that the pre-college categorical variables such as high school credential were *not* significant as predictors. Table 30 summarizes the two community college variables that contain categorical data. Again no significant difference was found between the groups of persisters and non-persisters for receipt of an associate's degree. In addition, there was no significant difference for the enrollment type of full-time or part-time. Table 31 shows the chi-square results for the university experiences and shows that only three of the nine variables were *not* significant, living on- and off-campus during the first and last semesters and the enrollment type (full-time/part-time). There was a significant difference ($p < .001$) between the two groups regarding the enrollment pattern of continuous or discontinuous. Not unexpectedly, the persisters were more likely to be continuously enrolled. A significantly higher percentage of persisters (33%) than non-persisters (12%) changed their majors while

they were enrolled at the university. The three financial aid variables were all significant. The persisters (72%) were significantly more likely to have received financial aid than the non-persisters. A significant difference was found between the persistence rates of students who had filed FAFSA forms (72% for persisters and 53% for non-persisters). A significant difference was found between persistence rates of students based upon financial aid status; those with a dependent status were more likely to persist. Finally, a significantly higher percentage of persisters (19%) than non-persisters (11%) changed colleges during the time they were enrolled at the university.

T-test results.

The significant differences between persisters and non-persisters in terms of their means (averages) on continuous variables such as high school cumulative GPA, ACT composite scores, and community college and university experiences were analyzed by *t*-tests. The results are reported in order by descending significance value in Tables 32 to 34. For the pre-college background, only high school GPA was significant ($p < .05$), but this result must be viewed with caution because it was based on a smaller number of cases where the data were available (see Table 32). Students with higher high school GPAs were more likely to persist. Table 33 reports the *t*-tests results for the community college experiences; only one of the 13 variables was found to be significant. While at the community college the persisters averaged almost nine credit hours per term and the non-persisters averaged slightly more than eight credit hours per term. Table 34 reports the results for the tests for significance for the continuous data variables in the university experiences. Fifteen of the 21 variables were found to be significant. Fall and spring enrollment behaviors were significant showing that the persisters stopped out for less than a semester and enrolled for five and a half academic year (fall and spring) semesters. By contrast, the non-persisters averaged fall and spring stop-outs of more than seven semesters and enrolled for less than two and a half academic year semesters. The persisters earned significantly more credit hours ($M = 134.0$) than the non-persisters ($M = 80.9$). The persisters were enrolled for almost three years, whereas the non-persisters were enrolled for slightly more than one year. Significantly, the persisters were enrolled for more fall and spring semesters full-time, and more summer sessions part-time. In contrast, more non-persisters stopped-out and did not enroll for summer sessions; however, when they did enroll for a summer session they were more likely to enroll full-time. The number of possible fall, spring, and summer semesters was significantly

higher for the non-persisters, which is related to the higher number of stop-outs. Significant differences were found in the amount of time that students stopped out between the community college and the university with the persisters stopping out for less than six months and the non-persisters for one year. The difference in the length of time from first enrollment at the community college to last enrollment at the university was significant with the persisters averaging almost one year of additional enrollment. Finally, there was a significant difference ($p < .001$) between cumulative GPAs, with persisters higher at $M = 3.11$ and the non-persisters at $M = 2.15$.

Logistic regression results: pre-college experiences.

Logistic regression techniques were employed to examine the effects of pre-college background on persistence at the university. The pre-college variables of ACT score and high school GPA were not included in this analysis due to missing data concerns. Table 35 reports the results of the logistic regression analysis for predicting persistence based on pre-college background and shows that none of the factors is a significant predictor. The number of cases with non-missing data included in the analyses is noted at the bottom of each regression table.

Hierarchical logistic regression results: community college experiences.

Hierarchical logistic regression was used to examine the effect of the community college experience on persistence at the university after controlling for pre-college variables. Again, high school GPA was not included due to missing cases. Because of multicollinearity concerns, the following variables were not included in the analysis: ACT; community college developmental credits in English, math, and reading; total semesters enrolled at the community college; community college average credits per term; community college credits *not* transferred; and age when last enrolled at the community college. Table 36 provides the summary of the logistic regression analysis after controlling for pre-college background variables and shows that once again no factors were significant as predictors.

Hierarchical logistic regression results: university experiences.

The final analysis examined the effect of the university experience on persistence at the university after controlling for both pre-college background and community college experiences. Again hierarchical logistic regression analysis was used, and the variables not included due to missing cases and multicollinearity are listed in Table 37. Table 38 reports the results of the analysis in descending order of

significance values, with four items being significant predictors. The strongest predictor of bachelor's degree attainment was the total number of years enrolled at the university. Another strong predictor of persistence is the pattern of continuous enrollment; no stop-outs. The total number of years that students were enrolled at the community college was a significant predictor. Finally, community college GPA became a predictor of degree attainment.

Discussion

Data analyses provided a profile of persisters and non-persisters at both the univariate and multivariate levels. Although some of the findings support earlier research concerning the retention of transfer students (e.g., continuous enrollment at the four-year institution is positively related to persistence), other results (e.g., earning an associate's degree at the two-year institution was not positively related to persistence) were surprising and may be of particular interest to those responsible for planning, policies, and programs at both the two-year and four-year institutions.

Keeping in mind that this was a one-to-one institutional study examining a single population over a specified time period, practitioners may recognize common traits, themes, and trends that correspond to their students. For high school guidance personnel one of the most important aspects of this study will be to inform students and parents that it is possible to aspire to a bachelor's degree, beginning with enrollment at a community college. Given the current economic climate and ever increasing tuition costs, understanding the value of this option may be critical to college planning for potential college bound students. The same information will be of benefit to community college recruiters as they meet with prospective students in their regions of the country. At the four-year institutions, admissions recruiters often attend high school college fairs to recruit incoming first-year students. Admissions officers should consider expanding their efforts to reach potential transfer students currently enrolled at community colleges. This type of recruiting may already be in place at some institutions; however, the recruitment strategies should become more intentional. Practitioners should be aware of the realities of the popular phrase "two-plus-two" and the ramifications for an academic plan that would meet the stated ideal of two years at the community college, and two years at the four-year college or university resulting in completion a bachelor's degree.

Intentional recruitment as mentioned above should include an across the board recruitment effort focused on community college students in general. Program specific recruitment such as for the nursing

school or technology majors provides a built-in audience at the community college. Additional strategies should include focused recruitment of underrepresented populations and should encourage recruitment of students from diverse ethnic and economic backgrounds. Once the students have been recruited it is essential that the support services be intentional, obvious, and available to students.

Practitioners at both institutions who provide support services to students need to be aware of the factors that appear to influence persistence rates for transfer students while remembering that there are individual cases within this study that demonstrate success is possible under a variety of circumstances. The implications of providing adequate support services for transfer students should not be lost on institutional and government educational policy planners. Increased persistence rates translate to increased enrollment numbers, which translate for institutions into increased funding, and for governments into a more highly educated and better-trained workforce.

At the community college there are numerous persistence predictors and other information that practitioners can share with students in helping them to understand the transfer process. For example, students may not understand the value of successfully completing a developmental course in reading, math, or English, especially since the credits do not transfer to the university. However, if students become aware that many persisters in this study took at least one developmental education course, perhaps they will see the value of a solid academic foundation upon which to build their educational plan. Students may not be aware of the benefits of completing an associate's degree or at least reaching junior standing by virtue of completing articulation agreement requirements if available on a state-wide or institution-to-institution basis.

Among the support services that would help students to persist might be an intentional and possibly intrusive academic advising program designed for potential transfer students. It is critical that students have a clear understanding of the bachelor's degree requirements at the university. With intentional planning, the student, along with the assistance of a knowledgeable academic advisor, should be able to assess what the student has already accomplished and devise an educational plan that builds upon previous academic work while providing the most direct route to achieve the goal of a bachelor's degree. One important aspect of such a program would be to provide realistic goals, realistic expectations and a realistic timetable for achieving the goals.

All constituency groups should be informed and conscious of how transferable credits are defined and the impact on an academic plan of transferable credits versus credits that transfer to meet degree requirements. The distinction between transferring and meeting degree requirements might mean the difference in a student's decision to transfer or to persist after arriving at the university (Dougherty, 2001). Many of the community college transfer students' records indicated they received blocks of credits for non-equivalent courses; sometimes this was as few as five credits, but more often it was 10, 20, or even 30 credits that transferred but did not meet degree requirements. In one case the non-equivalent credits were for a number of courses in welding at the community college, but in other cases these were not technical courses but upper division courses (deemed non-parallel) that could not be transferred to meet degree requirements. The problem of non-equivalent and or non-parallel courses is related to several different factors including perceived problems with program accreditation as well as the perception that community college courses are often inferior to the same or similar courses taught at the university. Occasionally, the senior institution degree requirements state that all upper division courses must be completed at the senior institution (Dougherty, 2001; Laanan, 2001).

Practitioners and students must recognize the inherent problems that stopping out creates while understanding that usually the issue is not academic but personal. Transfer centers and designated transfer advisors can assist the students to prepare for transfer to the university and offer special orientations for transfer students when they arrive at the university. Keeping students connected during a stop-out semester may also be critical to their re-enrollment and ultimate persistence to degree attainment. As mentioned earlier, the personal contact and keeping the student connected to the institution could be accomplished via email, quick postcard reminders of registration dates, a short phone call, and an offer to meet the student to discuss their re-enrollment options at a time that is best for the student. Practitioners should also become aware of a pattern exhibited by the non-persisters in this study that showed a relationship between fall and spring semester stop-outs, followed by full-time summer semester enrollment. This pattern of discontinuous enrollment may lead to higher rates of non-persistence.

Barriers related to successful transfer have been studied, and recommendations for improved practice have been discussed (Brint & Karabel, 1989; Cohen & Brawer, 1996; Dougherty, 2001; Laanan, 2001). However, this study has gone beyond the barriers to the actual transfer process and examined the

factors that influenced persistence and non-persistence before and after the students had completed the transfer process. Some of the barriers did not appear to exist overtly, but this was not a study of grading practices, accurate advising, admissions policies, financial aid, or transfer shock. The results of this study should inform practitioners and students of factors that were associated with increased rates of persistence.

This study did not fully support the implication of a two-plus-two program, meaning that a student would complete a bachelor's degree after two years at the community college and two years at the university. However, the study did demonstrate that students can and do earn bachelor's degrees after beginning their studies at the community college. For those students who attend on a regular basis, taking two or three classes per semester, perhaps a more accurate phrase would be, earn your bachelor's degree in three-and-three. Practitioners can and should use these results to inform students who truly desire a two-plus-two plan of the enrollment patterns that would achieve a four-year degree program.

Transfer centers need to be an intentional part of a community college's academic division in order to fulfill the transfer mission. The centers should be staffed with knowledgeable practitioners and given the current budgetary crisis faced by most institutions; creative staffing may be in order. For example, working in partnership with regional colleges to provide an advisor several days a week/month and hiring former students who have successfully negotiated the transfer process to work part-time as peer advisors in the center might provide a staffing solution. Students who have already attained their degrees should be invited to appear on panels and at transfer fairs to provide aspiring students with answers and advice from the "been there, done that" perspective.

At the four-year institution it will be more difficult to provide the intentional assistance that would be helpful to transfer students beyond trying to require attendance at an orientation session. Once the student is admitted and the transcript evaluated, no one at the institution, with the possible exception an academic advisor will be aware that the student transferred from the community college unless the student shares that information with faculty, staff, and other students. Since many transfer students commute to campus, the off-campus student center would provide another opportunity for intentional programming directed at the transfer population. However, as practitioners who assist the commuter and non-traditional student populations are already aware, this population is often not centered on being students, but rather on their lives outside of the campus. The other avenue for intentionally reaching out to transfer students at the

university would be to inform faculty about the issues that affect transfer students and their persistence rates. This information could be shared with faculty in a variety of methods from email updates, and articles in the faculty press, to exchange sessions with their counterparts at the community college, and sessions provided during faculty development days.

The implications for practice are necessarily complicated because the efforts of practitioners at two institutions are needed to assist in increasing the bachelor's degree attainment rates. Given that over half of the first-time college students begin at a community college, only a small portion of community college students transfer; of those, few earn associate's degrees, and even smaller numbers earn bachelor's degrees. It is imperative that two and four-year schools develop partnerships to create and establish strong transfer opportunities and programs. Increasing the transfer student graduation rate is a worthy goal that will serve community colleges, four-years colleges and universities, and the public well.

Further research using institutional data would be valuable especially in the area of in-depth transcript analysis. Data from transcripts at the community college would provide information concerning enrollment patterns, such as what type of courses were taken, whether the student was on a clear transfer track program, whether the courses were vocational, and how often the student repeated a course. An in-depth analysis of the enrollment behaviors based upon a semester-by-semester analysis of the community college records would provide a clearer picture of the enrollment behaviors, such as stop-out behavior, while at the community college. A study that examined coursework and records looking for connections to the associate's degree mystery would provide information to address why so few students complete the degree before transferring to the university. A close examination of records would reveal how many students were actually close to earning an associate's degree prior to transferring and whether remaining at the community college long enough to earn the degree involved taking more classes that did not count towards the bachelor's degree or qualified the student for higher financial aid at the university.

This study showed that non-persisters had a significantly lower average GPA than the persisters at the time of last enrollment at the university. Since the GPAs at last enrollment at the community college were similar, an exploration of the possible role of transfer shock affecting the non-persisters would be valuable. One interesting phenomenon revealed by this study that should be explored for relationships to persistence rates as well as to cumulative GPAs, is the co-enrollment pattern of many students.

Finally, the strongest recommendation for future research would involve the students and staff at both institutions. Adding the perspectives of the students and staff would enhance the discoveries about the persisters and non-persisters in pursuit of a baccalaureate degree. This could be accomplished through administration of a survey, and/or qualitative research methodologies. Conducting focus group sessions with students and practitioners at the community college as well as the university would provide valuable insights regarding the transfer experience from the perspective of these constituency groups. Pursuing individual interviews with persisters and non-persisters would gain the rich, thick descriptions necessary for the full story to emerge. Although the non-persisters might be more difficult to reach, hearing their stories would be very illuminating and might provide new ideas for influencing future persistence rates. Students who are persisters and non-persisters have valuable experiences to share with researchers, practitioners, and policy planners providing implications for future practice.

References

Bean, J. P., & Metzner, B. S. (1985). A conceptual model of nontraditional undergraduate student attrition. *Review of Educational Research, 55*(4), 485-540.

Brint, S., & Karabel, J. (1989). *The diverted dream: Community colleges and the promise of educational opportunity in America, 1900-1985.* New York: Oxford University Press.

Cohen, A. M., & Brawer, F. B. (1996). *The American community college* (3rd ed.). San Francisco: Jossey-Bass.

Dougherty, K. J. (2001). *The contradictory college: The conflicting origins, impacts, and futures of the community college.* Albany: State University of New York Press.

Gerald, D., & Hussar, W. (2001). *Projections of education statistics to 2011* (NCES 2001-083). Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics.

Laanan, F. S. (ed). (2001). *Transfer students: Trends and issues.* New Directions for Community Colleges, Number 114, Summer 2001. San Francisco: Jossey-Bass.

National Center for Public Policy and Higher Education. (2002). *A national status report on the affordability of American higher education*. San Jose, CA: Author.

Pascarella, E. T., & Terenzini, P. T. (1991). *How college affects students*. (1991). San Francisco: Jossey-Bass.

Rifkin, T. (Ed.). (1996). *Transfer and articulation: Improving policies to meet new needs.* New Directions for Community Colleges, Number 96, Winter 1996. San Francisco: Jossey-Bass.

Stahl, V. V., & Pavel, D. M. (1992, April). *Assessing the Bean and Metzner model with community college student data.* Paper presented at the annual meeting of the American Educational Research Association, San Francisco. (ERIC Document Reproduction Service No. ED 344 639)

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45,* 89-125.

Tinto, V. (1987). *Leaving college: Rethinking the causes and cures of student attrition.* Chicago: University of Chicago Press.

Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). Chicago: University of Chicago Press.

Table 1
Demographic Characteristics

Characteristics	Persisters		Non-Persisters	
	n	%	*n*	%
Gender				
Female	220	59.8	102	55.4
Male	148	40.2	82	44.6
Race				
Other	40	10.9	17	9.2
White	328	89.1	167	90.8
GED				
No	362	98.4	178	96.7
Yes	6	1.6	6	3.3
High School GPA				
Below 2.00	14	3.8	16	8.7
2.00–2.49	27	7.3	20	10.9
2.50–2.99	31	8.4	18	9.8
3.00–3.49	23	6.3	13	7.1
3.50–4.00	13	3.5	3	1.6
Missing	260	70.7	114	62.0
ACT				
14–17	30	8.2	9	4.9
18–20	60	16.3	27	14.7
21–23	29	7.9	14	7.6
24–26	11	3.0	4	2.2
27–28	4	1.1	0	0.0
Missing	234	63.6	130	70.7

Note. Persisters: $n = 368$; non-persisters: $n = 184$.

Table 2
Community College Years Attended

Number of Years Attended	Persisters		Non-Persisters	
	n	%	*n*	%
1.00 or less	62	16.8	33	17.9
1.01-2.00	93	25.3	39	21.2
2.01–3.00	87	23.6	53	28.8
3.01–4.00	34	9.2	18	9.8
4.01-5.00	17	4.6	12	6.5
5.01–10.00	22	6.0	12	6.5
10.01-25.00	12	3.3	8	4.3
Missing	41	11.1	9	4.9
Total	368	100.0	184	100.0

Table 3
Community College Enrollment Pattern

Enrollment Pattern	Persisters		Non-Persisters	
	n	%	*n*	%
Full-time	60	16.3	28	15.2
Part-time	267	72.6	147	79.9
Missing	41	11.1	9	4.9
Total	368	100.0	184	100.0

Table 4
Total Community College Semester Credit Hours Earned

Number of Credits Earned	Persisters		Non-Persisters	
	n	%	*n*	%
12	6	1.6	1	0.5
13–24	33	9.0	27	14.7
25–36	57	15.5	26	14.1
37–48	41	11.1	20	10.9
49–60	55	14.9	20	10.9
61–72	45	12.2	30	16.3
73–84	71	19.3	38	20.7
85–96	27	7.3	11	6.0
97–162	33	9.0	11	6.0
Total	368	100.0	184	100.0

Table 5
Community College Average Semester Credit Hours per Term

Average Credits per Term	Persisters		Non-Persisters	
	n	%	*n*	%
1.00–1.99	6	1.6	3	1.6
2.00–2.99	14	3.8	11	6.0
3.00–3.99	12	3.3	10	5.4
4.00–4.99	10	2.7	4	2.2
5.00–5.99	15	4.1	17	9.2
6.00–6.99	27	7.3	19	10.3
7.00–7.99	36	9.8	17	9.2
8.00–8.99	35	9.5	16	8.7
9.00–9.99	45	12.2	23	12.5
10.00–10.99	44	12.0	18	9.8
11.00–11.99	23	6.3	9	4.9
12.00–12.99	22	6.0	12	6.5
13.00–13.99	17	4.6	4	2.2
14.00–14.99	10	2.7	7	3.8
15.00–15.99	3	0.8	3	1.6
16.00–16.99	2	0.5	2	1.0
17.00–17.99	4	1.1	0	0.0
18.00–19.00	2	0.5	0	0.0
Missing	41	11.1	9	4.9
Total	368	100.0	184	100.0

Table 6
Total Developmental Semester Credit Hours Earned

Total Developmental Credit Hours Earned	Persisters		Non-Persisters	
	n	%	*n*	%
0	178	48.4	93	50.5
3–4	103	28.0	52	28.3
5–8	59	16.0	25	13.6
9–10	0	0.0	2	1.1
11–12	23	6.3	8	4.3
13–32	5	1.4	4	2.2
Total	368	100.0	184	100.0

Table 7
Semester Credit Hours That Transferred

	Persisters		Non-Persisters	
Transferred Credit Hours	*n*	%	*n*	%
12	10	2.7	3	1.6
13–24	47	12.8	37	20.1
25–36	62	16.8	24	13.0
37–48	48	13.0	19	10.3
49–60	50	13.6	19	10.3
61–72	49	13.3	36	19.6
73–84	54	14.7	31	16.8
85–96	27	7.3	8	4.3
97–124	21	5.7	7	3.8
Total	368	100.0	184	100.0

Table 8
Community College Age at First Enrollment

	Persisters		Non-Persisters	
Age (Years)	*n*	%	*n*	%
14.00–18.99	166	45.1	76	41.3
19.00–20.00	65	17.7	40	21.7
20.01–22.00	35	9.5	20	10.9
22.01–24.00	23	6.3	10	5.4
24.01–27.00	13	3.5	12	6.5
27.01–30.00	10	2.7	6	3.3
30.01–40.00	11	3.0	11	6.0
40.00–51.00	5	1.4	1	0.5
Missing	40	10.9	8	4.3
Total	368	100.0	184	100.0

Table 9
Community College Age at Last Enrollment

	Persisters		Non-Persisters	
Age (Years)	*n*	%	*n*	%
14.00–18.99	7	1.9	14	7.6
19.00–20.00	53	14.4	16	8.7
20.01–20.99	93	25.3	38	20.7
21.00–22.00	52	14.1	25	13.6
[illegible]–24.00	63	17.1	34	18.5
[illegible]–27.00	32	8.7	24	13.0
27.01–29.99	25	6.8	8	4.3
30.00–39.99	28	7.6	14	7.6
40.00–53.00	13	3.5	10	5.4
Missing	2	0.5	1	0.5
Total	368	100.0	184	100.0

Table 10
Community College Cumulative GPA

Cumulative GPA (4.00 scale)	Persisters		Non-Persisters	
	n	%	*n*	%
Less than 2.00	13	3.5	4	2.2
2.00–2.49	63	17.1	30	16.3
2.50–2.99	104	28.3	65	35.3
3.00–3.49	97	26.4	47	25.5
3.50–4.00	91	24.7	38	20.7
Total	368	100.0	184	100.0

Table 11
Associate's Degree Earned

Associate's Degree	Persisters		Non-Persisters	
	n	%	*n*	%
No	280	76.1	132	71.7
Yes	88	23.9	52	28.3
Total	368	100.0	184	100.0

Table 12
University Total Fall and Spring Semester Enrollment

Total Fall & Spring Semester Enrollment	Persisters		Non-Persisters	
	n	%	*n*	%
0	0	0.0	3	1.6
1	0	0.0	54	29.3
2	5	1.4	57	31.0
3	48	13.0	30	16.3
4	70	19.0	23	12.5
5	66	17.9	10	5.4
6	73	19.8	4	2.2
7	52	14.1	1	0.5
8	30	8.2	1	0.5
9	14	3.8	1	0.5
10–13	10	2.7	0	0.0
Total	368	100.0	184	100.0

Table 13
University Fall and Spring Semester Stop-Out Behavior

Fall and Spring Stop-Outs	Persisters		Non-Persisters	
	n	%	*n*	%
0	299	81.3	0	0.0
1	34	9.2	9	4.9
2	9	2.4	22	12.0
3	10	2.7	13	7.1
4	4	1.1	12	6.5
5	2	0.5	13	7.1
6	1	0.3	14	7.6
7	1	0.3	11	6.0
8	1	0.3	19	10.3
9–12	7	1.9	46	25.0
13–16	0	0.0	25	13.6
Total	368	100.0	184	100.0

Table 14
University Full-Time Summer Semester Enrollment

Full-Time Summer Semesters	Persisters		Non-Persisters	
	n	%	*n*	%
0	297	80.7	177	96.2
1	62	16.8	7	3.8
2	8	2.2	0	0.0
3	1	0.3	0	0.0
Total	368	100.0	184	100.0

Table 15
University Part-Time Summer Semester Enrollment

Part-Time Summer Semesters	Persisters		Non-Persisters	
	n	%	*n*	%
0	128	34.8	141	76.6
1	139	37.8	32	17.4
2	76	20.7	8	4.3
3	20	5.4	2	1.1
4	5	1.4	0	0.0
5	0	0.0	1	0.5
Total	368	100.0	184	100.0

Table 16
University Total Summer Semester Enrollment

Total Summer Semesters	Persisters		Non-Persisters	
	n	%	*n*	%
0	102	27.7	136	73.9
1	133	36.1	36	19.6
2	88	23.9	8	4.3
3	37	10.1	3	1.6
4	8	2.2	0	0.0
5	0	0.0	1	0.5
Total	368	100.0	184	100.0

Table 17
University Summer Semester Stop-Out Behavior

Summer Semester Stop-Outs	Persisters		Non-Persisters	
	n	%	*n*	%
0	113	30.7	2	1.1
1	140	38.0	27	14.7
2	61	16.6	34	18.5
3	28	7.6	24	13.0
4	13	3.5	24	13.0
5	11	3.0	31	16.8
6	2	0.5	20	10.9
7	0	0.0	16	8.7
8	0	0.0	6	3.3
Total	368	100.0	184	100.0

Table 18
University Enrollment Pattern

	Persisters		Non-Persisters	
Type of Enrollment	*n*	%	*n*	%
Continuous	297	80.7	0	0.0
Discontinuous	71	19.3	184	100.0
Total	368	100.0	184	100.0

Table 19
University Full-Time and Part-Time Enrollment

	Persisters		Non-Persisters	
Enrollment	*n*	%	*n*	%
Full-time	153	41.6	80	43.5
Mixed (both FT & PT)	175	47.6	46	25.0
Part-time	40	10.9	58	31.5
Total	368	100.0	184	100.0

Table 20
University Total Semester Credit Hours Earned

	Persisters		Non-Persisters	
Number of Credits Earned	*n*	%	*n*	%
0.00–24.00	0	0.0	14	7.6
25.00–48.00	2	0.5	16	8.7
49.00–72.00	8	2.2	43	23.4
72.01–84.00	11	3.0	28	15.2
85.00–96.00	16	4.3	29	15.8
97.00–108.00	24	6.5	17	9.2
108.01–120.00	28	7.6	16	8.7
120.01–132.00	92	25.0	9	4.9
132.01–144.00	62	16.8	3	1.6
144.01–156.00	49	13.6	3	1.6
156.01–168.00	42	11.4	3	1.6
169.00–180.00	12	3.3	1	0.5
181.00–192.00	14	3.8	0	0.0
193.00–288.00	8	2.2	2	1.0
Total	368	100.0	184	100.0

Table 21
Number of Years Between Community College Last Enrollment and University First Enrollment

Years Between CC	Persisters		Non-Persisters	
& University Enrollments	*n*	%	*n*	%
Co-enrolled	52	14.1	11	6.0
0 (no stop-out)	104	28.3	56	30.4
1 to 2 semesters stopped out	164	44.6	76	41.3
1.00–2.00	20	5.4	15	8.2
2.01–3.00	7	1.9	8	4.3
3.01–5.00	6	1.6	5	2.7
5.01–10.00	10	2.7	7	3.8
10.01–20.00	3	0.8	5	2.7
Missing	2	0.5	1	0.5
Total	368	100.0	184	100.0

Table 22
Number of Years From Community College First Enrolled to University Last Enrolled

Years CC First Enrolled to University Last Enrolled	Persisters		Non-Persisters	
	n	%	*n*	%
2.00 or less	5	1.4	19	10.3
2.01–3.00	18	4.9	30	16.3
3.01–4.00	63	17.1	53	28.8
4.01–5.00	78	21.2	18	9.8
5.01–6.00	57	15.5	15	8.2
6.01–7.00	35	9.5	8	4.3
7.01–8.00	18	4.9	4	2.2
8.01–9.00	11	3.	4	2.2
9.01–10.00	5	1.4	3	1.6
10.01–20.00	34	9.2	19	10.3
20.01–30.00	3	0.8	3	1.6
Missing	41	11.1	8	4.3
Total	368	100.0	184	100.0

Table 23
Number of Years From Community College First Enrolled to University Graduation (Number of Years to Earn Bachelor's Degree): Persisters

Years Community College First Enrolled to University Graduation	*n*	%
1.75–2.00	2	0.5
2.01–3.00	6	1.6
3.01–4.00	32	8.7
4.01–5.00	57	15.5
5.01–6.00	42	11.4
6.01–7.00	24	6.5
7.01–8.00	10	2.7
8.01–9.00	11	3.0
9.01–10.00	3	0.8
10.01–20.00	25	6.8
20.01–30.00	1	0.3
Persisting 2002	125	34.0
Missing	30	8.2
Total	368	100.0

Table 24
University Age at First Enrollment

Age (Years)	Persisters		Non-Persisters	
	n	%	*n*	%
18.00–19.99	45	12.2	21	11.4
20.00–20.99	92	25.0	32	17.4
21.00–21.99	58	15.8	27	14.7
22.00–22.99	36	9.8	20	10.9
23.00–23.99	25	6.8	10	5.4
24.00–24.99	14	3.8	11	6.0
25.00–29.99	50	13.6	28	15.2
30.00–39.99	31	8.4	26	14.1
40.00–49.99	17	4.6	8	4.3
50.00–51.00	0	0.0	1	0.5
Total	368	100.0	184	100.0

Table 25
University Age at Last Enrollment

	Persisters		Non-Persisters	
Age (Years)	*n*	%	*n*	%
19.00–21.99	38	10.3	62	33.7
22.00–22.99	74	20.1	24	13.0
23.00–23.99	56	15.2	10	5.4
24.00–24.99	48	13.0	17	9.2
25.00–26.99	46	12.5	15	8.2
27.00–29.99	33	9.0	18	9.8
30.00–39.99	49	13.3	26	14.1
40.00–49.99	21	5.7	10	5.4
50.00–54.00	3	0.8	2	1.0
Total	368	100.0	184	100.0

Table 26
University Age at Graduation: Persisters

Age (Years)	*n*	%
20.00–21.99	8	2.2
22.00–22.99	31	8.4
23.00–23.99	45	12.2
24.00–24.99	41	11.1
25.00–26.99	34	9.2
27.00–29.99	31	8.4
30.00–39.99	35	9.5
40.00–49.99	15	4.1
50.00–54.00	3	0.8
Persisting Spring 2002	125	34.0
Total	368	100.0

Table 27
University Cumulative GPA

Cumulative GPA	Persisters		Non-Persisters	
(4.00 scale)	*n*	%	*n*	%
Less than 2.00	6	1.6	73	39.7
2.00–2.49	49	13.3	35	19.0
2.50–2.99	95	25.8	23	12.5
3.00–3.49	119	32.3	27	14.7
3.50–4.00	99	26.9	23	12.5
Missing	0	0.0	3	1.6
Total	368	100.0	184	100.0

Table 28
Bachelor's Degree Attainment Rate

Degree	*n*	%
Yes	243	66.0
Persisting (no degree) 2002	125	34.0
Total Persisters	368	100.0
Yes	243	44.0
Persisting (no degree) 2002	125	22.6
Non-persisters	184	33.3
Total Population	552	100.0

Table 29
Chi-Square Results for Pre-College Background

Demographic Characteristic	Persisters		Non-Persisters		
	n	%	*n*	%	X^2 (1)
GED					
No	362	98.4	178	96.7	1.5
Yes	6	1.6	6	3.3	
Gender					
Female	220	59.8	102	55.4	1.0
Male	148	40.2	82	44.6	
Race					
White	328	94.8	167	94.9	0.0
Other	18	5.2	9	5.1	

Note. Persisters: $n = 368$; non-persisters: $n = 184$.

Table 30
Chi-Square Results for Community College Experiences

Community College Experiences	Persisters		Non-Persisters		
	n	%	*n*	%	X^2 (1)
Associate Degree					
No	280	76.1	132	71.7	1.2
Yes	88	23.9	52	28.3	
Enrollment Type					
Part-time	268	81.7	148	84.1	0.5
Full-time	60	18.3	28	15.9	

Note. Persisters: $n = 368$; non-persisters: $n = 184$.

Table 31
Chi-Square Results for University Experiences

University Experiences	Persisters *n*	Persisters %	Non-Persisters *n*	Non-Persisters %	X^2 (1)
Enrollment Pattern					
Continuous	297	80.7	0	0.0	320.4***
Discontinuous	71	19.3	184	100.0	
Major					
Same	246	67.0	162	88.0	28.2***
Changed	121	33.0	22	12.0	
Financial Aid					
No	104	28.3	91	49.5	24.1***
Yes	264	71.7	93	50.5	
File FAFSA					
No	103	28.0	86	46.7	19.5***
Yes	265	72.0	98	53.3	
Financial Aid Status					X^2 (2)
Independent	108	40.8	53	54.1	8.0*
Dependent	120	45.3	40	40.8	
Both (independent and dependent)	37	14.0	5	5.1	
College					
Same	299	81.3	163	88.6	4.8*
Changed	69	18.3	21	11.4	
Lived Last Semester					
On-campus	4	1.1	6	3.5	3.8
Off-campus	364	98.9	165	76.5	
Lived First Semester					
On-campus	29	8.6	11	7.1	0.3
Off-campus	309	91.4	144	92.9	
Enrollment Type					
Full-time	153	41.6	80	43.5	0.2
Part-time	215	58.4	104	56.5	

Note. Persisters: $n = 368$; non-persisters: $n = 184$.

*$p < .05$. ***$p < .001$.

Table 32
Results of T-*test for Pre-College Background*

Pre-College	Persisters *M*	Persisters *SD*	Non-Persisters *M*	Non-Persisters *SD*	*df*	*t*
High school GPA	2.7	0.6	2.5	0.6	176	2.2*
ACT	19.6	3.1	19.7	2.5	186	-0.1

**$p < .01$.

Table 33
Results of T-*test for Community College Experiences*

	Persisters		Non-Persisters			
Community College	*M*	*SD*	*M*	*SD*	*df*	*t*
Avg. SCH per term	8.9	3.4	8.2	3.4	500	2.2*
Dev. English SCH	0.7	1.6	0.9	1.7	550	-1.2
Dev. math SCH	2.5	2.9	2.2	3.0	550	1.1
Cumulative GPA	3.0	0.6	3.0	0.6	550	0.9
Age first enrollment	20.7	4.7	21.0	4.7	502	-0.9
SCH *not* transferred	5.3	6.3	4.8	6.6	550	0.9
Years enrolled	2.9	2.8	3.1	3.3	500	-0.8
Total semesters	8.6	8.4	9.3	9.9	500	-0.8
Total SCH	59.1	27.4	57.1	27.6	550	0.8
Age last enrollment	23.8	6.0	24.2	6.5	547	-0.7
SCH transferred	53.8	26.0	52.3	26.1	550	0.6
Dev. total SCH	3.4	4.0	3.2	4.4	550	0.3
Dev. reading SCH	0.2	0.9	0.2	1.0	550	-0.2

*$p < .05$.

Table 34
Results of T-*test for University Experiences*

	Persisters		Non-Persisters			
University	*M*	*SD*	*M*	*SD*	*df*	*t*
Fall/spring stop-out	0.6	1.7	7.3	4.1	550	-27.0***
Fall/spring total semester enrolled	5.6	2.0	2.4	1.5	550	19.1***
Total SCH	134.0	30.0	80.9	36.3	550	18.3***
Summer stop-out	1.3	1.3	3.8	2.1	550	-17.7***
Years enrolled	2.8	1.2	1.2	1.0	550	15.3***
Fall/spring full-time	4.1	2.1	1.5	1.4	550	15.2***
Cumulative GPA	3.1	0.6	2.2	1.1	547	13.6***
Fall/spring semesters possible	6.1	2.6	9.7	4.1	550	-12.7***
Summer semesters possible	2.5	1.4	4.2	2.1	550	-11.1***
Summer total semester enrolled	1.2	1.0	0.4	0.7	550	10.2***
Summer part-time	1.0	1.0	0.3	0.7	550	8.7***
Summer full-time	0.2	0.5	3.8	0.2	550	4.9***
Years between CC & the university	0.4	1.9	1.0	2.7	547	-2.9**
Fall/spring part-time	1.5	2.3	1.0	1.3	550	2.8**
Years CC first to university last	6.2	3.7	5.4	4.5	50.	2.2*
Age first enrollment	24.2	6.1	25.3	6.9	550	-1.9
Age last enrollment	26.7	6.3	26.2	7.0	550	0.8
Unmet financial need ($)	$402	4542	$1180	10,273	361	-1.0
Expected family contribution ($)	$6149	6203	$5988	11,188	361	0.2
Commuting distance first semester	16.6	9.6	16.4	10.7	544	0.3
Commuting distance last semester	15.8	9.8	15.8	10.3	532	-0.0

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 35
Summary of Logistic Regression Analysis Predicting Persistence Based on Pre-College Background Variables

Predictor	*B*	*SE*	*Wald*	Exp. (B)
High school diploma	-0.7	0.6	1.5	0.5
Gender (female)	0.2	0.2	0.7	1.2
Race (minority)	0.0	0.4	0.0	1.0

Note. N = 522.

Table 36
Summary of Logistic Regression Analysis Predicting Persistence After Controlling for Pre-College Background Variables

Predictor	*B*	*SE*	*Wald*	Exp. (B)
Community College GPA	0.2	0.2	1.0	1.2
CC full-time enrollment	0.2	0.3	0.4	1.2
Gender (female)	0.1	0.2	0.3	1.1
Race (minority)	0.1	0.5	0.0	1.1
CC total credit hours	0.0	0.0	1.7	1.0
Total developmental credit hours	0.0	0.0	0.0	1.0
CC total years enrolled	-0.0	0.0	0.3	1.0
Total credit hours transferred	0.0	0.0	1.7	1.0
Age at first CC enrollment	-0.0	0.0	1.7	1.0
Associate's degree	-0.4	0.3	1.8	0.7
High school diploma	-0.7	0.7	0.9	0.5

Note. N = 475.

Table 37
Variables Not Included in Logistic Regression Analysis Due to Linear Dependencies

	Variable Name		Variable Name
1	CC Developmental English SCH	11	University Summer Semesters Possible
2	CC Developmental Math SCH	12	University Age at First Enrollment
3	CC Developmental Reading SCH	13	University Age at Last Enrollment
4	CC Total Semesters Enrolled	14	University Age at Graduation
5	CC Average SCH per Semester	15	Years from University First Enrollment to Graduation
6	CC SCH not Transferred	16	Years from CC First Enrollment to University Last Enrollment
7	CC Age When Last Enrolled	17	University Miles to Home First Semester
8	University Total Fall/Spring Semesters Enrolled	18	University Lived On-campus First Semester
9	Fall/Spring Semesters Possible	19	Ever Filed a FAFSA at the university
10	University Total Summers Enrolled	20	Average Expected Family Financial Contribution

Table 38
Summary of Logistic Regression Analysis Predicting Persistence After Controlling for Pre-College Background and Community College Experiences

Predictor	*B*	*SE*	*Wald*	Exp. (B)
University total years	1.5	0.4	12.0***	4.6
University continuous enrollment	6.8	2.0	11.8***	911.7
CC total years enrolled	0.2	0.1	4.5*	1.3
CC GPA	-1.7	0.8	4.2*	0.2
University same major	-1.2	0.8	2.4	0.3
CC full-time enrollment	1.2	1.0	1.3	3.2
University received financial aid	-0.9	0.8	1.2	0.4
Total credit hours transferred	0.1	0.1	1.2	1.1
University fall/spring stop-out	-0.5	0.6	0.8	0.6
CC total credit hours	-0.1	0.1	0.7	0.9
University GPA	0.4	0.5	0.5	1.5
Age at first CC enrollment	0.1	0.1	0.5	1.1
University summer full-time	1.0	1.4	0.5	2.6
University summer part-time	0.6	1.0	0.4	1.9
University same college	0.5	1.0	0.3	1.7
Full-time enrollment pattern	0.5	1.0	0.3	1.6
CC total developmental credit hours	0.1	0.1	0.2	1.1
University summer stop-out	-0.5	1.1	0.2	0.6
Race (minority)	0.5	1.4	0.1	1.6
Associate's degree	-0.4	1.0	0.1	0.7
Gender (female)	0.3	0.7	0.1	1.3
High school diploma	-3.0	9.9	0.1	0.1
University on-campus last semester	-1.2	4.8	0.1	0.3
University total fall/spring full-time	0.2	0.7	0.1	1.2
University total credit hours	-0.0	0.1	0.0	1.0
University total fall/spring part-time	0.1	0.7	0.0	1.1

Note. N = 462
*$p < .05$. ***$p < .001$.

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